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ABSTRACT

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Survey Feedback and Problem Solving with Complementary Collective Decision Structures

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Survey feedback and problem solving processes can be applied to increase the effectiveness of task-oriented structural approaches to educational organization development. One such approach involves the superimposition of complementary collective decision structures over the existing authority decision framework of the school. Collective decision structures potentially increase organizational flexibility and adaptability by providing for problem identification, solution generation, and change initiation at the faculty level. Survey feedback acts to initiate collective decision processes by providing an objective base for problem and need identification. Task-oriented problem solving sessions provide for problem analysis and solution generation; the collective decision configuration facilitates innovation legitimation and implementation. This paper presents a theoretical model for survey feedback--problem solving--collective decision interventions in educational systems. Factors hypothesized to account for the effectiveness of collective decision processes are noted and the proposed change-supporting structure is analyzed in terms of primary structural dimensions.

*this paper is condensed from:

Coughlan, Robert J.; Cooke, Robert A.; and Safer, L. Arthur, An Assessment of A Survey Feedback--Problem Solving--Collective Decision Intervention in Schools, Evanston, Ill.: Northwestern University, Final Report (Project O-E-105, Contract OEG-5-7-0036 (509)), U.S. Department of Health, Education, and Welfare, Office of Education, 1972.

Cooke, Robert A., "Complementary Collective Decision Structures for Educational Systems," Evanston, Ill.: Northwestern University, 1972.

Survey or data feedback is a process which involves the systematic collecting and reporting-back of information related to various aspects of the organizational work environment. Survey techniques can provide organizations with internal feedback through the monitoring of members' perceptions, opinions, and attitudes toward their work situation. Participant feedback is particularly important for educational systems because schools receive minimal external and technical feedback for guiding their activities. Though the contributions of survey feedback are potentially great, empirical research has suggested that this and other organization development strategies often fail to bring about lasting changes in system effectiveness and member work attitudes. These failures are very possibly due to a lack in the interventions to establish enduring change supporting structures in the school organization. The organization development strategy presented in this paper focuses on the institutionalization of change supporting structures through the use of survey feedback and problem solving methods. The objective of the strategy is to superimpose a complementary collective decision making structure over the existing authority decision framework found in schools.

The first section of this paper focuses on organizational decision making processes with a particular emphasis on change and innovation. Authority decision processes are described and discussed

in terms of the school environment and technology. A general model for collective decision making in schools is offered and contrasted to the authority decision model. In the second section, we present an overview of a task-oriented and structural approach to organization development designed to reinforce dual decisional structures in schools. Selected components of the survey feedback--problem solving--collective decision intervention are described in relation to collective decision subprocesses. We focus on the factors hypothesized to account for the effectiveness of collective decision activities and the anticipated functional consequences of the intervention.

Decision Making and Change Processes in Organizations

Underlying the survey feedback--problem solving--collective decision (SF-PS-CD) intervention is the assumption that organizations can exhibit two relatively distinct decisional structures in responding to environmental uncertainty. These abstract structures reflect the operation of authority (vertical) and collective (horizontal) decision processes. Though authority and collective processes necessitate different sets of organizational roles and procedures, the processes can co-exist within formal social systems and reinforce one another in a complementary manner. As in most formal organizations, however, schools tend to exhibit much stronger authority than collective structures.

Authority Decision Processes Authority decisions imply the existence of two different units in a social system: (1) the adopting unit which consists of those individuals who must take over and

actually implement a decision and (2) the decision unit which includes those individuals, having formal authority over the adopting unit members, who decide whether the subordinate group will execute certain courses of action (Rogers and Shoemaker, 1971). In educational organizations, school boards, superintendents, and principals commonly assume decision unit roles as they respond to community pressures, state and federal legislation, and new knowledge and technology. Change decisions made at the managerial and institutional levels are communicated to technical core operatives (the faculty) who then are expected to carry out the change and incorporate the new program or procedure into on-going activities.

Numerous change and decision making models, both prescriptive and descriptive, have been developed in the organization theory and diffusion of innovation literature. These models suggest that the authority innovation decision process in schools can be analyzed in terms of a number of distinguishable subprocesses. Authority decision subprocesses include: evaluation, input-evaluation, initiation, communication, adoption, implementation, and routinization. [This model builds upon the work of Rogers and Shoemaker (1971), Stufflebeam (1967), and Aiken and Hage (1971), and is largely consistent with other organizational change models reviewed by Macguire (1970) and Zaltman, Duncan, and Holbek (1973).]

Context evaluation involves the identification and specification of "(1) the major subsystems of the domain to be served; (2) the unmet needs of the domain through an assessment of the discrepancies among intended and actual outputs of the subsystem; and (3) the basic causal problems underlying each need" (Stufflebeam, p.

129). The specification of organizational problems and needs is followed by a search for possible system inputs--programs, procedures, personnel, facilities--which might alleviate the need. This second stage involves both the specification of and the evaluation of solutions and alternatives. Initiation reflects the actual decision concerning the innovation and the systematic planning for implementation of the selected course of action. The early stages of program change in formal organizations are not necessarily performed exclusively by decision unit members. Authority decision processes, though initiated and directed by upper and middle level administrators, may be participative as subordinates are involved in evaluation and initiation activities.

To the extent to which authority decisions are non-participative, the stage of communication becomes more clearly distinguishable. "When the decision unit has chosen the innovative alternative it wishes to adopt, messages must be transmitted in a downward flow from superiors to subordinates, following the authority pattern of hierarchical positions to the adoption unit" (Rogers and Shoemaker, p. 309). The adoption stage involves the subordinates' acceptance of the innovation which has been selected by the decision unit. It reflects the extent to which teachers accept and are satisfied with the proposed change or innovation. Adoption is conceptually distinct from implementation, the stage at which the program or procedure is put into practice. Program routinization reflects the standardization and formalization of the roles and procedures associated with the innovation. At this point, the routinized program can be subjected to summative or product evaluation. As the program is evaluated within the context of overall organizational objectives

and other procedures, context evaluation continues and the circular nature of authority innovation decision processes becomes evident.

Some Limitations of Authority Processes Authority decision processes are commonly deficient in practical situations. The model of authority innovation processes presented above might be more prescriptive than descriptive of change activities in schools. For example, it is doubtful that administrators presently utilize rigorous evaluation programs such as those suggested by Stufflebeam (et. al., 1971) or Guba (1968). More generally, authority decision processes can deviate from this model or "break down" at any of the hypothesized stages. Improved procedures for authority decision processes would certainly increase the ability of schools to change successfully. However, it seems that barriers to effective problem solving, change initiation, and decision making would still exist even in the presence of well structured authority procedures.

First, highly structured authority decision processes are inconsistent with the demands of the educational technological environment. Implicit in the technology of education is some minimal level of uncertainty at the teacher level. Though school boards and administrators are able to buffer or cushion the technical core from some of the uncertainty and indeterminateness of the external environment, teachers are constantly forced to solve problems, make enlightened and creative decisions, and try new techniques in responding to both the intellectual and affective needs of their students. As problems and decisions are contained with the individual classroom, traditional teacher training increases the educators' ability to function effectively. Teachers, however, could benefit greatly

from learning that their problems are shared and from exchanging their interpretations of the problem. Furthermore, many problems and decisions go beyond the classroom and demand the attention, cooperation, and coordination of all teachers in the school or district. We have observed, for example, that teachers in relatively ineffective schools desire a greater voice in the schools' educational program. These faculties, while recognizing the inadequacies of the administratively-prescribed curriculum, have indicated that they have little opportunity to define the failures of their program or to change the curriculum.

Second, context evaluation is often incomplete in schools because certain types of problems are rarely communicated upward by individual teachers. Upward communication in hierarchically structured organizations is poor for a variety of reasons. Subordinates sometimes distort information, filter out items potentially objectionable to superordinates, or repress information which could affect them adversely. With such inherent limitations in upward communication, administrators are unable to gather relevant information on certain types of problems. In some cases, they may not know that a particular problem exists; in other instances, they may not have sufficient information to solve the problem or to suggest needed changes.

Third, authority decision processes commonly fail to tap the problem solving and change initiation capabilities of the faculty. Not only are teachers in the most appropriate organizational position to generate creative solutions to problems, they are also in a good position to advocate change. Authority decision processes place change advocacy roles within the office of administrative per-

sonnel, chiefly the principal and superintendent. These individuals may be at a relative disadvantage in initiating change due to the balancing nature of their roles. Spindler notes that the major administrative function "...is in large part that of maintaining a working equilibrium of at best antagonistically cooperative forces. This is one of the reasons why school administrators are rarely outspoken protagonists of a consistent and rigorously profiled point of view" (1963, p. 142). Considering this observation and the fact that educational problems and innovations often derive their relevance from larger social systems, Gallaher (1965) suggests that the school administration role is not by nature conducive to advocacy functions.

Teachers are possibly in a better position to initiate and advocate change. First, in contrast to administrators, teachers are rarely expected to assume balancing roles. Second, teachers might be more aware of new educational developments than are administrators who are instead trying to keep up with new ideas on organization, finance, and community relations. Third, as teachers are able to work as a group and increase the number of people active in change initiation, a sufficient change mass or needed impetus for change becomes attainable.

Another problem with authority decision processes is that they have a somewhat limited potential for achieving high teacher acceptance of and satisfaction with innovations. Numerous studies have shown that limited participation in and control over decision processes is associated with low acceptance of decision outcomes. Dissatisfaction with change and innovation dissonance on the part of the faculty inhibits the routinization of new programs and procedures

in schools. One means for circumventing this (and other) problems is to involve teachers through participatory methods in the authority decision process. An additional and possibly more effective means may be the development and utilization of collective decision structures which permit teachers to solve problems and initiate change on their own.

Collective Decision Processes Collective innovation decisions are those made by members of a social system or formal organization by consensus. Collective processes are most frequently observed in small groups, voluntary associations, and communities. A minimal amount of research has focused on collective decision activities in formal organizations; however, models of collective decision making in communities have been constructed (e.g., see Rogers and Shoemaker). Our extended model represents collective decision processes which are consistent with the authority structural configuration of formal organizations.

The model includes seven subprocesses: (1) collective evaluation, comparing organizational objectives to present performance for the specification of problems and needs; (2) stimulation of interest in new ideas and the generation of suggestions and solutions to problems; (3) internal diffusion of proposed changes horizontally throughout the organization and the modification of solutions to better fit organizational requirements; (4) legitimation of proposed changes by the formal representatives of the system; (5) adoption of the proposed change by organizational members and the final planning for the change; (6) implementation of the new program or procedure; and (7) routinization or the merging of the program with existing organizational roles and procedures.

Though authority and collective processes are similar in many respects, there are some important differences between the two. Authority decisions are initiated and controlled by the administration while collective decisions are enacted by the faculty group; authority decisions primarily involve downward communication while collective decisions necessitate horizontal and upward communication; in authority decisions the adopting and decision units constitue different groups while in collective processes the faculty group often assumes both decision and adopting unit functions. Such differences do not exclude the simultaneous co-existence of authority and collective processes in school organizations. It is assumed that some organizations do in fact exhibit multiple decision structures which are used in responding to different types of problems. Schools, however, tend to exhibit much stronger authority structures versus collective structures. Mechanisms for collective evaluation are frequently non-existent; faculty meetings are a "waste of time" and unproductive; horizontal communication is limited to informal networks; and upward communication is incomplete and distorted. Such underdevelopment of formal collective structures has not prevented faculty group action--collective activities occur within the organization (the informal work group) and externally (unions, pressure groups). It has been observed, however, that these collective activities are sometimes competitive, rather than complementary, to authority processes and are associated with power conflicts, inefficiency, and low morale. These negative outcomes emphasize the need for an organization development strategy which focuses on all aspects of collective decision processes in schools.

A Theoretical Overview of the Survey Feedback--Problem Solving--Collective Decision Intervention

Our major objective in designing the SF-PS-CD intervention was to install or reinforce complementary dual decision structures in schools. We saw survey feedback and problem solving procedures a useful mechanisms for increasing the viability of superimposed collective decision structures. The SF-PS-CD strategy incorporates survey feedback methods for collective evaluation, task-oriented problem solving techniques for solution generation, inter-departmental confrontation meetings for internal diffusion, overlapping vertical group structures and documentation for upward communication and legitimation, and schedules and task assignments for implementation. A theoretical overview of the SF-PS-CD intervention, focusing on the seven collective decision subprocesses, is presented below. A general description of the intervention is offered and some factors hypothesized to account for the effectiveness of the strategy are noted.

Collective Evaluation The intervention employs survey feedback procedures to improve faculty evaluation activities and to initiate collective decision processes in schools. A standardized survey, measuring teacher attitudes and opinions toward important aspects of their work environment, is administered to faculty groups in all participating schools. At the data collection stage, the emphasis is on confidentiality--the preservation of anonymity should minimize any perceived threat and maximize the validity of teacher responses. Teachers in each school vote as to whether they want the survey data fedback. (Though the SF-PS-CD intervention is legitimated at the

top of the organizational hierarchy, teachers are not obligated to continue the program and participation is on a voluntary basis.)

Assuming that feedback is requested, elected faculty representatives (program leaders) are trained in special feedback techniques. Data is reported back to the faculty group through the use of graphs and charts. Faculty groups are presented data on their own school (or department) profiled against average scores for a group of similar schools. We expected that satisfaction with and acceptance of the data would be greater when presented by the informal group leader than when presented by hierarchical superordinates, internal staff specialists, or the external change agents. Klein, Kraut, and Wolfson's (1971) recent findings indicate that these feedback procedures would result in high group satisfaction and perceived utilization of the data.

As data is fedback and teachers compare their own attitudes to the group's position, their feelings will either be corroborated or disconfirmed (Miles et. al., 1969). As the faculty group compare their group's scores to the mean scores of similar schools, any discrepancies will become apparent. The saliency of relatively favorable and unfavorable attitudes should stimulate curiosity, lead to constructive inquiry, and specify important issues for group discussion and analysis. Preliminary data discussion focuses on defining the importance of problem areas and deciding whether the group is competent to deal with the problem. In this manner, problems and decisions outside the teachers' "zone of indifference" are "selected" for collective decision making. As teachers concentrate on problems of consequence to them, their interest and concern should be high and faculty participation should be effective (Miles et. al., Bridges).

Evaluation activities continue with an objective and task-oriented discussion of the survey findings. These discussion meetings are conducted by the elected program leader rather than by the principal or external agents. The natural work group, especially in the absence of supervisors, can engage in uninhibited and unconstrained discussions where spontaneity is encouraged (Katz and Kahn, 1966). Though peer groups are potentially more productive and efficient than family groups (those which include formal leaders), meetings can turn into gripe sessions and have negative outcomes. The training of the program leader, which focuses on objective and task-oriented problem solving techniques and de-emphasizes social development, is instrumental in bringing about positive results in the problem identification sessions. As early as 1950, Maier and other researchers demonstrated that groups with leaders trained in task-oriented problem solving skills perform better than those with untrained leaders.

The orientation of the evaluation meetings, satisfaction and acceptance of the data, and member interest and concern should operate to increase the teachers' propensity to contribute to the discussions. A major objective at the collective evaluation stage is the determination of group consensus regarding organizational problems, needs, and objectives. Increased interest in the reasoning behind conflicting attitudes should provide motivation for the clarification of each members' position (Miles et. al.). These group pressures can produce conformity, the avoidance of which is important ; the existence of varying perspectives in problem specification offers the potential for creative solutions. Program leaders are encouraged to elicit differing opinions from the group members and to interpret disagreement as a source of ideas rather than as a source

of problems (Maier and Hoffman, 1965).

The SF-PS-CD program prescribes the precise specification of problems, the definition of underlying reasons and causes, and the development of specific change goals. Problems are broken down into subproblems and interpreted at the role, inter-role, and organizational levels. Precise problem specification is stressed because in many cases the most critical aspect of problem solving and decision making seems to be the recognition and identification of the problem or need for a decision. Precise subproblem specification has been shown to lead to higher quality solutions in laboratory experiments. This precision should increase group member understanding of organizational problems and facilitate solution generation and the eventual choice between suggested alternatives.

Stimulation The SF-PS-CD intervention is designed to take the faculty group beyond evaluation to solution generation. By means of the task-orientation of the informal leader, the objective nature of the discussion, and the specification of subproblems, the SF-PS-CD process is expected to change the faculty group's innovation boundary and effect creative problem solving. The faculty group should become increasingly aware of relatively poor "performance" along certain organizational dimensions by means of the cross-organization feedback data. Slevin notes that individuals process information on how well they and others are doing "...to arrive at predictable estimates of how well they will do by trying something new" (1972, p. 528). As the superior work situation or performance of similar schools becomes apparent, it seems that faculty members should be motivated to generate more innovative solutions for the attainment

of higher success levels.

The intervention also alters the innovation boundary by reducing the social and psychological costs of suggesting and trying new dieas. Group members are encouraged to generate a large number of alternatives for each problem or subproblem. Inventive and innovative solutions are invited but remedies which involve large financial support are avoided. Teachers are asked to look outside the school for solutions--external sources include other schools, professional journals, etc.. Members are ensured that all suggestions will be recorded but no names will be included in the group's minutes. Program leaders dissuade the members from evaluating the alternatives prematurely. The selection of the most satisfactory solution is delayed until the next meeting to afford the teachers sufficient time for analyzing each alternative.

Internal Diffusion The SF-PS-CD intervention incorporates mechanisms which provide for the communication of identified problems, proposed solutions, and relevant innovations to all organization members who might be affected by the change decisions. In small elementary schools, where the entire faculty acts as a single program group, the need for additional horizontal communication is minimal. Internal diffusion mechanisms become necessary, however, as the size and complexity of the school increases.

Problem solving groups in a large multi-department high school would be structured on the basis of departmental lines. These groups may be somewhat differentiated as their respective members approach problems from their own particular organizational location and professional perspective. Accordingly, if a number of teachers in different departments select their own most satisfactory solutions to

problems which pervade the entire organization, it is not unlikely that the selected alternatives will be mutually unacceptable.

The presentation of group recommendations to the administration is preceded by a meeting of the program leaders from the concerned departments. These representatives exchange information regarding any solutions which would affect each others' subunits. Program leaders then provide their own group with feedback concerning the attitudes, perceived problems, and ideas of other organization members. The leaders then meet again to modify proposed solutions to better fit the needs of the entire organization and to increase acceptance of the proposal throughout the school.

Program leader meetings provide for confrontation between heterophilous individuals who have been adequately trained in problem solving skills. The leaders'objective is to generate superior solutions rather than "smoothing over" differences or "forcing" decisions (see Lawrence and Lorsch, 1967). If a proposed change would interfere with the activities of other organizational subunits or result in inter-departmental coordination problems, the solution must be modified. However, solution quality is decreased if modification results from power struggles between departmental members or from over-commitment to subunit goals. Program leaders are encouraged to discuss underlying causes of conflict and to use differentiated perspectives for conceptualizing more sophisticated solutions. In striving for an "effective solution," program leaders are urged to consider: (1) the quality of the solution in terms of meeting system needs; (2) the acceptance of the solution in terms of group members' propensity to implement and utilize the idea; and (3) the minimum level of commitment and cooperation necessary for the imple-

mentation of the change.

As new ideas are communicated for purposes of modification, structured internal diffusion also effects an increase in faculty awareness of innovations. As ideas are quickly diffused throughout the school, even those teachers who are informally isolated will learn of the proposal. At best, this increased awareness might extend acceptance; at worst, opposition will be surfaced before implementation. Additionally, this mechanism will increase communication between innovative and non-innovative members. New ideas commonly enter a social system through innovative individuals who differ in systematic ways from their non-innovative couterparts. Innovators tend to communicate with one another rather than with relatively heterophilous non-innovators; consequently the flow of new ideas throughout the system is often minimal (Rogers and Shoemaker, pp. 210-214). Internal diffusion may be further restricted by heterophily caused by specialization, hierarchical stratification, and departmentalization. It seems that the program leader meetings are important not only for confrontation but also for the efficient communication of innovations to all organizational members.

Legitimation The SF-PS-CD strategy accounts for the hierarchical structure of the school organization and incorporates the resultant power structure as perceived by its members into the intervention process. In formal organizations, multiple decision structures would be complementary only to the extent that collective processes are consistent with the role and status relationships of the authority decision structure. Legitimation activities provide a link between the authority and collective structures and facilitates the coordination

betwhen these two potentially competitive systems. The SF-PS-CD intervention provides the necessary mechanisms for the legitimizing of group recommendations, and in so doing, provides a potential for improved vertical communication.

The intervention provides for the formation of three vertical overlapping groups. As shown in Figure I, certain individuals are key members of more than one of the three committees (see Likert, 1961 and Havelock, 1971 on overlapping groups). The program leader (or leaders) and school principal are the central individuals in this arrangement. The program leader is a member of all three committees and the school principal participates in the Review Committee and Policy Committee. In most cases, the program leader is responsible for the upward transmission of information from the problem solving group to the Review Committee. Other members of the program group occasionally might be assigned the responsibility for communicating identified problems and proposed solutions to others. In any case, responsibility for communication is always relegated to a specific individual or subgroup.

While the overlapping group structure sets the stage for vertical communication, other aspects of the SF-PS-CD intervention are instrumental in bringing about the effective utilization of this network. The strategy focuses on vertical communication between groups rather than between individuals. Group membership enhances a subordinate communicator's ability to interact with superordinates on a more equal basis. Group membership has been shown to decrease the subordinates' feelings of threat and to increase their propensity to: (1) disagree with supervisors, (2) offer counterproposals, (3) act less defensively, and (4) assume more problem-oriented

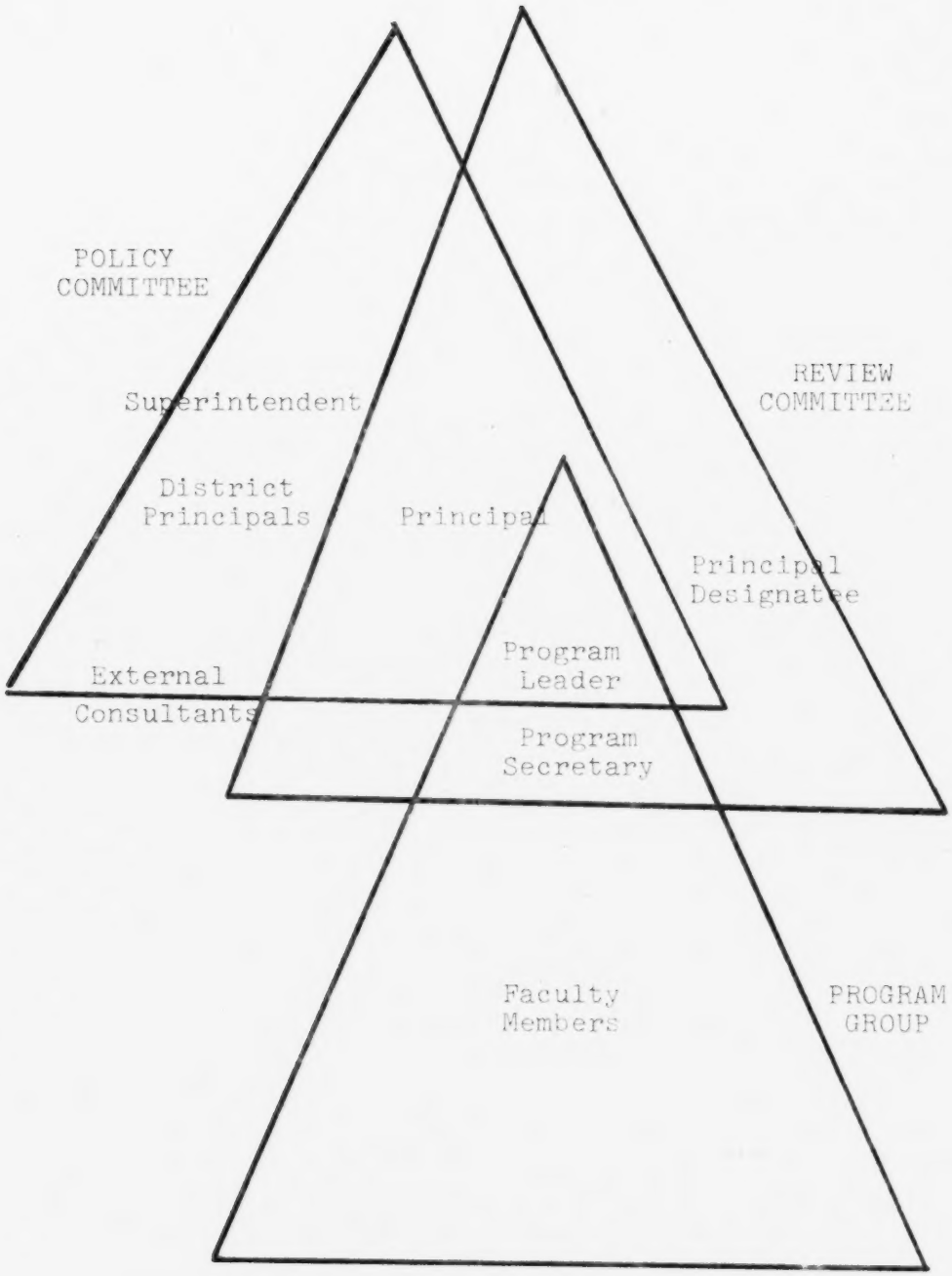

Figure I

Overlapping Groups in the Collective Decision Communication Network

behavior [Jackson, Butman, and Runkel, cited in Jackson, 1959. Jackson also notes: "...when communication from a superior is directed to a gropu rather than to isolated individuals, it is likely that more accurate transmission of information is achieved." (p. 495)]

Other factors related to the functioning of the problem solving group are expected to increase the potential for and the efficiency of vertical communication. First, the problem solving sessions minimize the transmission of inconsistent and conflicting statements of problems. Administrators are spared the task of reconciling the differing perspectives of the faculty members--this task is accomplished during the group meetings. Second, the transmission of underdeveloped statements of problems is minimized. Problems perceived by the faculty are not discussed at the Review Committee level until they are broken down into subproblems and analyzed in terms of underlying reasons and causes. Additionally, suggestions for alleviating the problem are generated and communicated when possible and appropriate. Third, problems are stated in impersonal and task-oriented terms; organizational titles are used rather than names; unconstructive criticism and negatively-worded statements are avoided. Fourth, as group ideas are documented on special forms for Review Committee consideration, the accuracy of vertical communication should increase. Next, we expected that the inter-organizational data would effect an increase in the objectivity of vertical communication. Isolated and subjective "gripes" from individual teachers would be replaced by more sophisticated statements of objectively identified group problems. As messages focus on the identified problems, the relevancy of upward communication to organizational needs should increase. Communication efficiency further increases as the Review Committee

determines which types of changes can be implemented without higher level sanctioning.

Downward communication should increase in relevancy and efficiency as feedback from the Review Committee focuses on those policies directly related to problem areas. Proposed solutions might be authorized, rejected, or sent up to the Policy Committee for further consideration. In the case of rejection, administrators are encouraged to explain the reasons for non-authorization and suggest possible modifications. As this information is conveyed to the teachers, their understanding of organizational problems improves. On the basis of this broadened perspective, the faculty may then attempt to generate modified solutions of higher quality and increased feasibility. Occasionally, proposed solutions might have to be drastically modified or abandoned completely. In these cases, it is possible that faculty dissatisfaction with the situation in question will decrease as a result of an improved understanding of the problem.

Adoption We anticipate that there will be relatively high acceptance of solutions and innovations generated through SF-PS-CD procedures. The guidelines necessitate a minimal level of acceptance at the early stages of the collective decision process. General group consensus is required before the idea is communicated upward for legitimation. The group discussions and participative problem solving activities are expected to bring about both higher faculty acceptance of change and greater organizational innovativeness. Factors associated with the acceptance of collective innovation decisions are related to (1) the individuals' involvement in the decision process and (2) the group interaction. These causal factors

can be interpreted as (1) direct process effects or (2) indirect or secondary pressures.

Direct process effects occur as group decision making activities progress. Many process effects are predominately the result of the individual's participation in the decision making process. As teachers take part in decision processes, their understanding of the problem, influence over the decision, and awareness and understanding of selected alternatives increases. These decision making process effects, which can occur independently of any group interaction, act to increase the individual's satisfaction with and acceptance of the decision outcomes. Other direct process effects are predominately the result of increased interaction among group members. Interaction process variables complement the decision making process variables; as group interaction increases, members gain an even broader organizational perspective, are exposed to heterophilous individuals, and learn about new ideas more quickly.

There are a number of important indirect pressures which result from participation in group decision making activities. These indirect pressures tend to modify the behavior of individuals and change certain characteristics of the group. Indirect decision making pressures act to increase member commitment to particular decision outcomes. Some of these pressures, such as those for cognitive consistency, are intra-personal. Other indirect decision making pressures are inter-personal and are based on the individual's perceptions of the group's commitment to the decision. These perceptions can be reinforced by group interaction and thus could be interpeted as group interaction conformity pressures. There are, however, a number of factors which less questionably can be classified as indirect inter-

action effects. These factors are social psychological consequences of increased interaction between teachers. For example, it is possible that individuals become increasingly prone to others' influence as interaction becomes more frequent (see Havelock, 1971). Group interaction also can effect decreased resistance to acceptable outside information sources resulting from peer support.

While such factors can account for faculty acceptance of the solutions generated in the program group, adoption is concerned with teacher acceptance of the solution in its final form after modification and legitimation. We anticipated that faculty acceptance would remain high even after solution modification. Effective downward and horizontal communication increases the faculty's understanding of the problem area and organizational constraints as their own attitudes are supplemented with differentiated perspectives. Less distorted and more objective vertical communication should bring about more consistency across organizational levels regarding member attitudes toward problems and preferences for possible solutions.

The adoption stage includes the final planning for the change and the preparation of the system for implementation. Preliminary planning will have taken place during earlier stages of the collective decision process. During the stimulation stage, the logistics of alternative solutions are studied to determine relative feasibility. The internal diffusion of selected alternatives increases the group's awareness of possible secondary consequences of the change throughout the organization. Review Committee feedback advances planning activities as additional organizational and environmental constraints are identified.

Nevertheless, final planning must take place prior to implementa-

tion to ensure the efficient execution of the proposed change. Though the SF-PS-CD guidelines include relatively few prescriptions for final planning, two procedures are suggested. First, a sub-committee is formed to deal with the proposed change in greater detail. Specific group members are assigned responsibility for defining needed resources for implementation and exploring the consequences of the change. Second, a time schedule for implementation is developed which assigns who is to do what by when, thus firming up starting, interim progress checks, and completion dates.

Implementation The SF-PS-CD intervention is expected to bring about a high degree of implementation of group initiated programs. Implementation, which is often accompanied by conflict and general organizational disequilibrium, should be less disruptive as a result of the adopting unit members' participation in group problem solving activities. Three collective decision properties should facilitate innovation implementation: the formalization of group decision outcomes, the scheduling of faculty activities, and the effects of multiple decision structures on change processes.

First, the program leader and his or her secretary are responsible for documenting all problems identified and solutions generated by the group. Each decision outcome is recorded as an "Action to Take" by members of the team. Katz and Kahn assert that group decisions are more powerful when the decision outcomes are clearly stated in terms of action roles: "The changed beliefs are removed from the area of good intentions to the realities of everyday behavior" (p. 402). Specification of decision outcomes acts to increase the clarity of goals associated with new programs. As change goals

become more precise, the predisposition of individuals to engage in change tasks should increase.

Second, the setting of deadlines is possibly one of the most effective means for increasing an individual's propensity to engage in non-routine activities. Though programmed activities tend to drive out non-programmed activities, deadlines can act to increase an individual's concern with the latter type of task (March and Simon, p. 186). Schedules are established for all actions planned by the program group. The unambiguous assignment of responsibilities to specific faculty members further increases the probabilities for implementation.

Third, implementation is facilitated as the school is able to alternate between the collective and authority decision structures. Alternation is important because of the varying effects of fixed structural characteristics on innovation decision subprocesses. For example, centralization seems to hinder evaluation, stimulation, and internal diffusion at lower organizational levels but tends to facilitate the implementation of change. Similarly, though organizational complexity interferes with the system-wide adoption and implementation of new programs, complexity is also associated with the frequent introduction of innovations (see Aiken and Hage; Zaltman, Duncan, and Holbek). Inflexibly structured organizations are thus able to introduce or implement new programs effectively--but are not able to do both.

This paradox can in theory be resolved partially through the use of multiple decision structures. As certain problems are channeled into the decentralized collective decision mechanism, the generation and dissemination of innovative solutions should be great.

After the proper solution is selected and legitimized (if necessary), responsibility for implementation could be shifted to the authority decision structure. The administrative expertise and the organizational location of school administrators is a prime necessity for the execution of many faculty-initiated changes. Similarly, the highly complex structure of a large school could feasibly increase the generation of new solutions. Collective structures could be employed to bring about internal diffusion and system-wide adoption and the authority structure could then control implementation.

To bring about this structural flexibility, the SF-PS-CD intervention is designed to reinforce collective structures without interfering with the functioning of authority structures. In practice, certain guidelines are needed to bring about alternation between these two decision structures and to use these complementary structures most effectively. The factors of relevance, competence, and faculty authority are instrumental in determining the relative contributions of the collective and authority structures. First, the program group must agree that a problem area is relevant in order for any type of collective activity to be beneficial. Relevancy implies that the identified problem has consequences for the faculty and that the members have a personal stake in any decision or change related to that situation (see Bridges). Relevancy also implies that the faculty members perceive some responsibility for dealing with the problem. If the condition of relevance is not satisfied, collective decision making probably will be ineffective and dysfunctional. The teachers might not be able to define properly a problem which does not affect them and/or members might lose interest in the entire collective process. Furthermore, teachers may resent

being called upon to work on certain problems if they are perceived to be the prerogative of other organizational members who are paid to handle those problems.

A relevant problem warrants the faculty's interpretation, specification, and analysis. However, if the faculty does not have the expertise to generate solutions to the problem, the collective decision process should terminate at the evaluation stage. The identified problem should be communicated upward and be resolved through authority decision channels. Further problem solving efforts at the faculty level would not, in this case, result in the initiation of many innovative solutions.

Both relevance and competence are necessary for stimulation, the second stage of the collective decision process. As these two conditions are met, faculty members should be motivated and able to generate creative solutions. A satisfactory solution should emerge and be selected once a number of possible alternatives have been identified and evaluated. However, if the program group does not have the authority to make a final decision, implementation of the selected alternative is not advised. Execution would be dysfunctional particularly if the changes initiated by the faculty were later opposed or reversed by those with the authority to veto the decision. (Administrators might have to reject faculty sponsored programs if those programs were inconsistent with community demands, in conflict with state and federal legislation, financially infeasible, not in coordination with the programs of other district schools, etc..) Under conditions of relevance and competence, but not authority, the program leader is instructed to communicate the problem and the teachers' recommendations for action to the Review Committee. In

these situations, legitimation is a necessary stage of the collective decision process.

There are certain changes the faculty can implement without the approval of the principal and other superordinates. Many decisions within schools meet the necessary conditions of relevance, competence, and authority for autonomous collective decision making. When this is the case, problems can be evaluated, solutions generated, and selected courses of action implemented by faculty members. Even in these instances, alternation to the authority structure might be beneficial. This would increase the administrators' participation in the decision process, increase their acceptance of the decision, and utilize their skill and control for proper implementation.

Routinization Educational innovations are often short-lived. New programs are quickly forgotten and new equipment is conveniently ignored. The SF-PS-CD intervention is expected to reverse this trend by increasing teacher involvement with and commitment to innovations. Provided proper incentives of procedures faculty members should exhibit a willingness to change their habits and adjust to new, self-imposed work situations. The application of new procedures and techniques should become less burdensome as a result of intergroup and interlevel planning. As a consequence, we anticipate that a higher proportion of new programs will become routinized (that is, merged with the standard operating procedures of the school) as the collective decision structure is used for organizational problem solving.

A major responsibility of the program group members at this final stage is follow-up on faculty-initiated changes. One of their objectives is to determine whether the proposed solutions have been

integrated into the school's task system by the target date. "Post-mortem" discussions and reports are recommended for identifying those new programs which have been improperly implemented or discontinued. Attention is also focused on the identification and correction of any unanticipated consequences of implemented innovations. Follow-up provides for the collective evaluation of new programs in relation to overall organizational performance. This reflects the circular nature of change models in general, and effective collective innovation processes in particular.

Follow-up activities implicitly include the evaluation of the SF-PS-CD program's effectiveness. As faculty members are involved in and review program group activities, they should perceive greater participation and collectivity in school decision processes. We anticipate that the collective decision process will be perceived by organizational members as sufficiently meaningful to: (1) ensure the continuation of faculty problem solving activities and (2) bring about a reinforcement of change supporting norms. Reflection on group processes acts to reinforce at least two important sets of norms which facilitate the "communication of information" and "collaborative action" (see Miles et. al., p. 463).

As the SF-PS-CD program is routinized, we expect that the development of change supporting norms will be accompanied by the development of change supporting collective structures. The structural characteristics of the collective decision processes will be reviewed briefly in terms of Pugh's (1963, 1968) conceptual scheme for organizational analysis.

The collective decision structure is characterized by a relahigh degree of standardization. Standardized procedures are those

events which occur regularly and are legitimized by the organization. Pugh cites four types of events as measures of standardization: "(1) decision-seeking procedures, (2) decision-making procedures, (3) information conveying procedures, and (4) procedures for operating or carrying out decisions" (1963, pp. 302-3). The SF-PS-CD guidelines prescribe rules and definitions for all these events as they relate to collective decision activities. The program also provides for a concomitant high degree of role standardization and specialization. Role prescriptions of school personnel for collective decision processes should increase in specificity--participants are confronted with new and specialized role expectations as they serve as program group members, program leaders, or Review Committe members. Collective problem analysis, solution generation, and program implementation represent the type of activities included in unambiguous role expectations provided by the program.

This increase in standardization should not increase organizational rigidity because it reflects the programming of under-structured change-producing activities. The relationship between the standardization of faculty initiated activities and the effectiveness of those activities is probably curvilinear. Considering the uncertainty and ambiguity surrounding natural (non-experimentally introduced) collective decision procedures in schools, a controlled increase in the structure of group problem solving activities should prove to be beneficial.

The collective decision structure is also characterized by a high degree of formalization. Formalization distinguishes the extent to which "...communications and procedures are written down down and filed," including "(1) statements of procedures, rules,

roles...and (2) operation of procedures, which deal with (a) decision seeking..., (b) conveying of decisions and instructions..., and (c) conveying of information, including feedback" (Pugh et. al., p. 303). Roles and procedures for feedback and problem solving are documented at the beginning of the intervention. Program leaders are provided with handbooks which document specific feedback techniques and problem solving methods. Results of the feedback itself are documented. Minutes are taken during every group session, circulated, and filed. Problems, underlying reasons and causes, and group recommendations are recorded as "SF-PS Results;" these reports are used to facilitate upward and horizontal communication.

The SF-PS-CD intervention is designed to change the shape or configuration of the school's organizational structure. The overlapping group structure increases the potential for the generation and transmission of group solutions. This collective decision structural configuration, though designed to be consistent with the ongoing system of relationships, is different from the authority structural arrangement. This comes about because different structural arrangements are necessary for technical core group problem solving versus managerial level problem solving, upward communication versus downward communication, teacher-initiated change versus administration-initiated change, and teacher collective evaluation versus administration context evaluation. We expect that the observed configuration of the authority decision structure will change as overlapping groups are employed for the communication of administration-initiated change.

Pugh's operationalization of centralization focuses on the terminal point or hierarchical level of the last person who must sanction decisions before action can be taken (1968). Collective

decision making is, by design and definition, decentralized. The degree of overall organizational centralization decreases as the faculty group gains the authority to implement certain types of changes without administrative approval. However, many of the solutions generated at the program group level are subject to Review Committee approval. These legitimized faculty-initiated changes would be classified as centralized decisions because Pugh's measurement does not consider the hierarchical level of evaluation or stimulation activities. Faculty evaluation and stimulation would be reflected by an increase along a "participation in decision making" dimension. (According to Pugh's operationalization of centralization, the dimensions of centralization and participation would be conceptually distinct.) Participation should improve the quality of centralized decisions and increase the general effectiveness of the centralized approach to management. For certain types of decisions, centralization can only be effective when the decision maker (the legitimizer) concentrates on selecting the best feasible alternative and allocates the responsibility for other decision subprocesses throughout the system.

As indicated throughout this theoretical overview, the new change supporting structures should increase organizational effectiveness, innovativeness, and health. The SF-PS-CD intervention is designed to bring about organizational changes along primary structural dimensions. These basic structural modifications should produce favorable changes in many second-order system properties which contribute to organizational health (see Miles, 1965; McElvaney and Miles, 1971). An important component of organizational health is innovativeness. We expect the intervention to improve both school innovativeness (early use of new structural and functional ideas) and the organiza-

tion's ability to change (adaptation to the environment through the implementation of ideas used in other schools but not previously used in the target school). Increased organizational effectiveness also becomes feasible as the faculty group generates inventive and creative solutions to existing school problems.

Higher levels of effectiveness and innovativeness, coupled with faculty members' perceptions of collectivity in decision processes, should produce favorable changes in the teachers' attitudes toward their work environment. Attitudes should improve as teachers perceive some influence over those decisions which they believe "legitimately belong within their sphere of influence." These favorable changes would be reinforced as faculty members gain a clearer "conception of who is responsible for making decisions" (Wick, 1971, p. 156). Further, the intervention provides a mechanism for specifying and correcting those school problems which tend to create unfavorable attitudes. Even if certain problems cannot be alleviated, faculty attitudes should improve as teachers gain a better understanding of organizational exigencies. Teacher attitudes toward the administration would be expected to improve as communication across hierarchical levels increases.

To our knowledge, no previous research has focused specifically on the effects of participation in collective decision processes on teacher work attitudes. Nevertheless, a closely related body of research strongly suggests that as lower organizational members increasingly participate in authority decision processes their satisfaction and morale improves. For example, Morse and Reimer's (1956) experimental manipulation of rank and file employees' involvement in decision making increased employee satisfaction and sense of responsi-

bility and decreased costs associated with work performance in the treatment groups. Research in the survey feedback tradition also supports the participation-satisfaction relationship. Mann (1957) found that as members of accounting departments participated in survey feedback and group problem solving activities, their attitudes changed favorably and morale improved. Likert (1961) found that particular changes in organizational communication and decision making procedures, coupled with the training of supervisory and staff personnel, resulted in increased employee satisfaction, a reduction in waste, and increase in productive efficiency. Seashores and Bowers (1963), applying Likert's theory of management, improved working relationships and employee attitudes in two departments of a manufacturing organization.

In educational systems, Chase (1951) found that teachers' enthusiasm for their school systems was related to the degree to which they participated in relevant decisions. Bidwell's (1956) research indicates that teacher satisfaction is related to the congruency between their perceptions and expectations of administrative behavior. His findings suggest, however, that increased participation does not necessarily improve teacher morale. Somewhat similarly, Belasco and Alutto (1972) compared teachers' preferred level of participation with their perceived level. They conclude that increased participation can actually be dysfunctional for teachers personally experiencing decisional saturation (too much participation).

The SF-PS-CD intervention incorporates mechanisms to direct teacher problem solving and decision making to issues which are relevant to the faculty's work situation. The strategy is hypothesized to lead to the development of new faculty norms governing collective

decision making. We expect that the problem solving procedures will raise teachers' preferred level of participation and will provide simultaneously for the opportunity for increased participation in decision making. The resulting higher level of decision equilibrium (preferred level equal to perceived level of participation) should bring about greater job satisfaction. Favorable work attitudes thus would be reinforced as relevant problems are discussed and organizational role relations improve.

The SF-PS-CD intervention was evaluated by means of a field research project involving twenty-four elementary schools in northern Illinois. Questionnaire and interview data indicated that the intervention did in fact bring about significant improvements in teacher work attitudes. The field experimental design, intervention procedures, and the results of the action-research program are described in the following paper ("A Survey Feedback and Collective Decision Intervention in Elementary Schools," Coughlan and Cooke, 1973).

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